

CLAIMS

What is claimed is:

5 1. A gas spring system having a spring force variable with
temperature, comprising:
a) a first membrane;
b) a second membrane;
c) means for sealing edges of said first and second membranes to define
10 a closed chamber therebetween for capture of gas;
d) first valve means for admitting gas to said chamber; and
e) second valve means for exhausting gas from said chamber.

15 2. A gas spring system in accordance with Claim 1 wherein said
means for sealing includes direct sealing of said first membrane to said second
membrane to form a gas-filled pillow.

20 3. A gas spring system in accordance with Claim 1 wherein said
means for sealing includes a rigid frame element disposed between said first and
second membranes.

 4. A gas spring system in accordance with Claim 3 wherein said
frame element has a trough-shaped cross section.

25 5. A gas spring system in accordance with Claim 4 wherein said
trough shape is radially concave.

 6. A gas spring system in accordance with Claim 4 wherein said
trough shape is radially convex.

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7. A gas spring system in accordance with Claim 1 wherein said first valve means is a check valve.

8. A gas spring system in accordance with Claim 7 wherein said
5 check valve is closed at all pressures across said valve exceeding about .1 psig.

9. A gas spring system in accordance with Claim 1 wherein said second valve means is a check valve.

10. A gas spring system in accordance with Claim 9 wherein said
10 check valve is closed at all pressures across said valve less than about 5 psig.

11. A fuel cell assembly, comprising:

- a) at least one fuel cell stack;
- 15 b) a supporting structure surrounding said fuel cell stack; and
- c) a gas spring disposed within said assembly between said stack and said supporting structure, said spring including a first membrane, a second membrane, means for sealing edges of said first and second membranes to
20 define a closed chamber therebetween for capture of gas, first valve means for admitting gas to said chamber, and second valve means for exhausting gas from said chamber.

12. A fuel cell assembly in accordance with Claim 11 wherein said
25 fuel cell stack includes at least one solid-oxide fuel cell.

13. A fuel cell assembly comprising:

- a) at least one fuel cell stack;
- b) a supporting structure surrounding said fuel cell
30 stack; and

c) gas spring means disposed within said assembly between said stack and said supporting structure, said gas spring means defining a closed chamber and including an inlet valve for admitting gas into said chamber and an outlet valve for exhausting gas from said chamber.